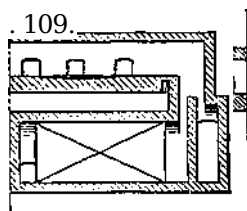


placed near ports through which the waste gases were passing. The same phenomenon occurs in the open-hearth melting furnace when, by reason of the wear of the ports, the velocity of the air and gas is reduced, and the jet of flame has a tendency to seek the roof of the furnace, its thickness being normally that of the gaseous stream, as computed according to Yesmann's formula. At the corners of the hearth, close to the ports, a pocket of colder gases is formed, and the bath freezes. In the Goujon works, at Moscow, a case of this kind occurred with a furnace having a hearth 14 m long. In order to correct this condition two burners for naphtha were installed, one behind the other.

In the case under consideration a different procedure was followed. The roof of the furnace was dropped close to the heads, to the height required for the inverted weir, thus forcing the



FIG

FIG. 110.

flame of burning gases to lick the hearth, not only where it issued from the ports, but also farther on. While estimating at its true value this method of reconstruction for the type of heads frequently used upon these furnaces, the author believes much better results can be attained in another way.

Figs. 109 and 110 are two sketches of constructions which may be employed in such a case. They are based upon the following considerations:

(a) The chilled gases are drawn off at the hearth level of the reheating furnace; this method of removing the inactive gases results in the uniform action of the hot gases upon the ingots and favors their regular and uniform heating.

(6) The producer gas and the preheated air enter the heating chamber of the furnace at a very low velocity, with the result that combustion takes place throughout the entire chamber, and the points of *sharp* combustion, close to the ports in the jet of flame,